

**PROCESS AND DEVICE FOR PRODUCING A LAYER OF TANTALUM  
PENTOXIDE ON A CARRIER MATERIAL, IN PARTICULAR TITANIUM  
NITRIDE, AND INTEGRATED CIRCUIT INCORPORATING A LAYER OF  
TANTALUM PENTOXIDE**

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**ABSTRACT**

Carrier material (PL) is heated (MCH) to a heating temperature of  
10 between 200°C and 400°C and a gas mixture (MG) including tert-  
butyliminotris (diethylamino) tantalum ( $t\text{-BuN}=\text{Ta}(\text{NEt}_2)_3$ ) is circulated in  
contact with the heated carrier material under an oxidizing atmosphere  
thereby forming a layer of tantalum pentoxide ( $\text{Ta}_2\text{O}_5$ ) on the carrier material.  
The partial pressure of the tert-butyliminotris (diethylamino) tantalum is  
15 preferably greater than or equal to 25 mTorr.